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CHANGES IN BENEWAH COUNTY FOREST STATISTICS

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JULY 1947

Prepared by the

DIVISION OF FOREST ECONOMICS

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CHANGES IN BENEWAH COUNTY FOREST STATISTICS

By

Paul D. Kemp

July 1947

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CHANGES IN BENEWAH COUNTY FOREST STATISTICS

By

Paul D. Kemp

Foreword

The McSweeney-McNary Forest Research Act of May 22, 1928, authorized and directed the Secretary of Agriculture, in cooperation with state and private agencies, to make a comprehensive nation-wide survey of forest resources. The objective of the survey was to assemble whatever information was considered necessary to provide ways and means of balancing the timber budget of the United States. The Secretary of Agriculture delegated the authority to the Forest Service, which assigned the task to the several regional forest experiment stations.

The study was designed to include 5 major phases: (1) an inventory of the extent and condition of forest lands, of timber supplies and of other forest products; (2) a determination of current and potential growth on forest land; (3) a determination of current drain resulting from cutting and other factors; (4) a determination of present consumption and estimated future requirements for timber and other forest products; and (5) an analysis of the facts for the purpose of formulating national policies to improve the forest situation.

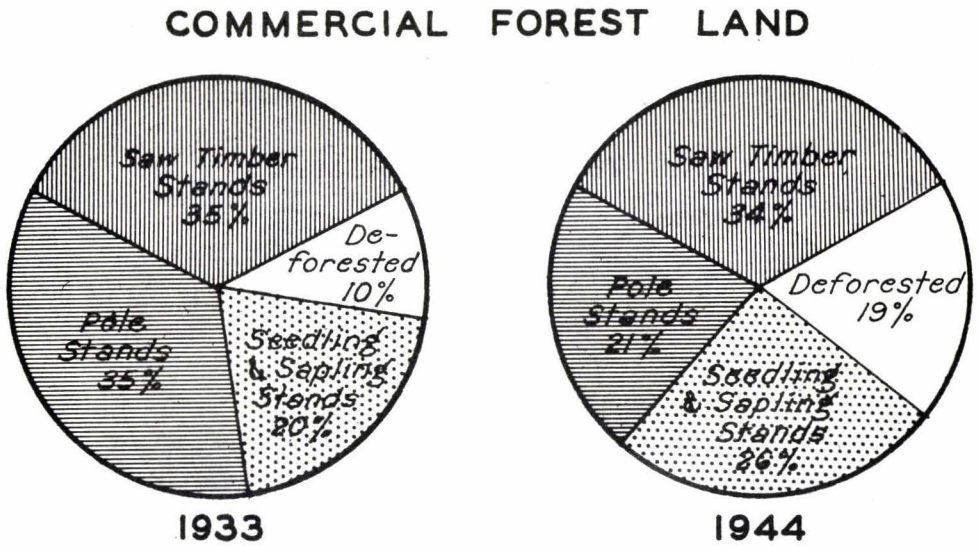
In 1932 the Northern Rocky Mountain Forest and Range Experiment Station initiated county-by-county surveys of the forests in North Idaho and northeastern Washington. By 1941, Idaho north of Salmon River, Montana west of the Continental Divide, three northeastern Washington counties, and 3 eastern Montana counties had been covered. The results of these surveys have been published and are available upon request.

The initial field survey of Benewah County, Idaho, was completed in 1932-33. The findings of this study were reported in Forest Survey Release No. 8, Forest Statistics, Benewah County, Idaho, issued by the Northern Rocky Mountain Forest and Range Experiment Station in September, 1937. In 1943-44, eleven years after the initial field survey, a resurvey was made to determine what changes had occurred. The following report summarizes the data obtained in the resurvey.

Summary of Findings

Forest Area

Benewah County, located in the central part of North Idaho, has a gross area of 504,000 acres and a gross land area of 497,000 acres. Approximately 404,000 acres or 81 percent of the gross land area is classified as forest land; 397,000 acres is classified as commercial forest land.



Since 1933 there has been a decrease of 4,000 acres of commercial forest land. These changes have resulted from land clearing and shifts from noncommercial to commercial forest land through more land becoming economically exploitable than previously anticipated.

During the 11-year period there have been significant changes in the composition of the forests. The area occupied by pole stands decreased from 35 to 21 percent; the deforested area increased from 10 to 19 percent; and the area occupied by seedling-sapling stands increased from 20 to 26 percent. Although the sawtimber stand area is approximately the same as in 1933, there have been significant changes in distribution and composition. The remaining stands are much less concentrated in large blocks; western white pine and ponderosa pine constitute only 21 percent of the sawtimber stand volume in contrast with 41 percent in 1933. There have also been outstanding changes in forest types. The area occupied by the western white pine type decreased 107,000 acres (from 160,000 to 53,000); the ponderosa pine type area decreased 71,000 acres (from 106,000 to 35,000); and the larch-Douglas-fir type decreased 3,000 acres (from 62,000 to 59,000). These three types occupied only 46 percent of the stocked commercial forest area in 1944 in contrast with 92 percent in 1933. All other types occupied appreciably more area in 1944 than in 1933, particularly Douglas-fir, hardwoods, and hemlock-grand fir types.

The change in the acreage of forest types is attributable to three principal factors: (1) the concentration of cutting in the prized species - white pine, ponderosa pine, and cedar; (2) the encroachment of the more

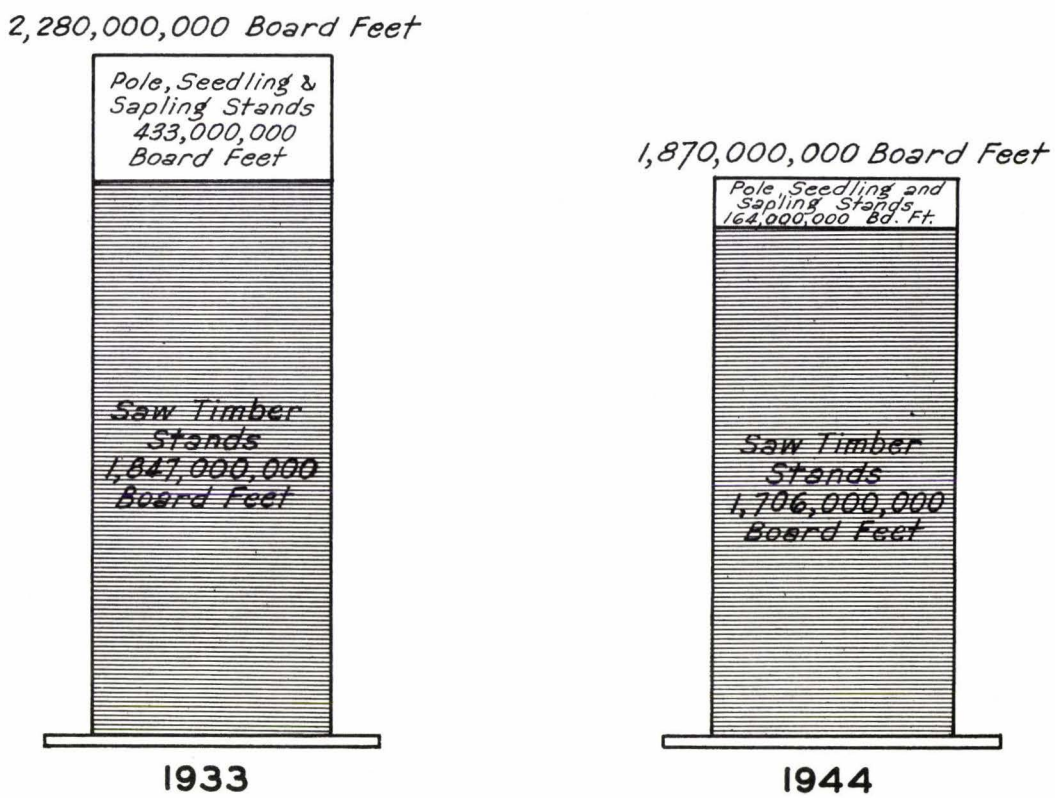
tolerant hemlock, grand fir, and Douglas-fir upon areas formerly dominated by white pine and ponderosa pine; and (3) somewhat more refined methods of classification in 1944 than in 1933 that resulted in factoring out small areas of alien types which in the 1933 survey were classified into one of the three then prevailing types - white pine, ponderosa pine, and larch-Doughas-fir.

Timber Volume

Sawtimber volume in 1944 totaled 1,870 MM board feet (Scribner), an all-species decrease of 410 MM feet in the preceding eleven years. The volume of six species was less in 1944 than in 1933; the volume of the remaining species increased. The 1944 volumes by species expressed as a percentage of the 1933 volumes were as follows: white pine 27, ponderosa pine 66, western larch 83, western redcedar 75, Engelmann spruce 32, lodgepole pine 86, Douglas-fir 137, grand fir 120, western hemlock 327, hardwoods 1,260. Distribution of the sawtimber volume was as follows:

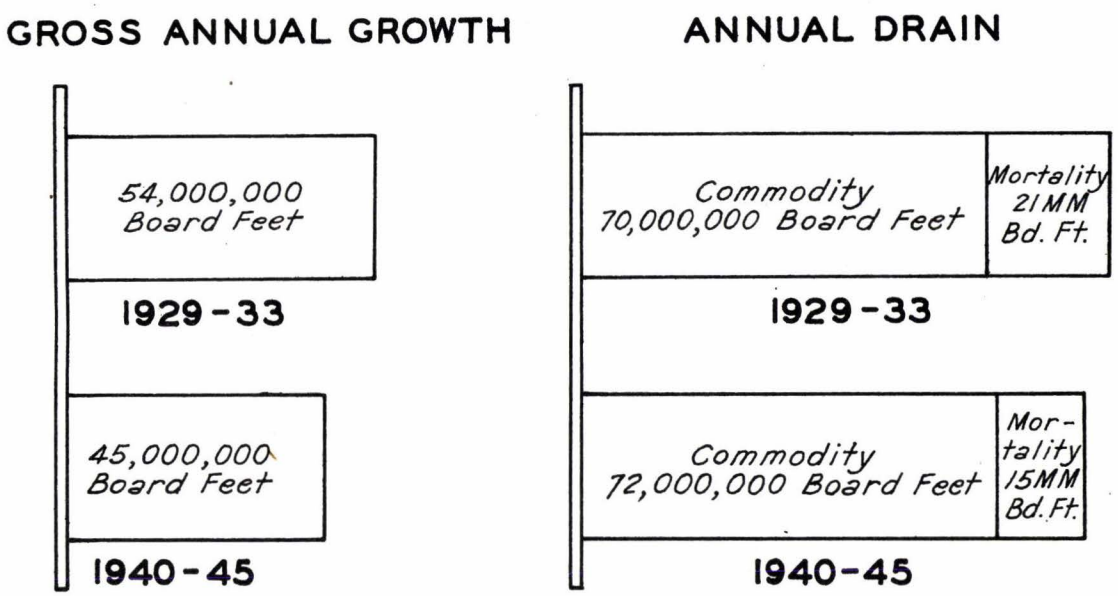
Stand-size class	1933 : MM Bd. Ft.	1944 (Scribner)
Sawtimber stands	1,847	1,706
*Pole stands	432	150
*Seedling-sapling stands .	1	14
Total	2,280	1,870

*Volume of trees 11.0 inches d.b.h. and larger.



Growth and Drain

Gross annual growth of merchantable sawtimber trees (based on the 1934-44 period) before allowances for cutting and mortality averaged 45 MM board feet (Scribner). Mortality (fire, insects, disease, etc.) averaged 15 MM feet, leaving a net annual growth before deducting for commodity uses of 30 MM feet annually from 1940-44. The net effect of all drain and growth during the past 5 years has resulted in a reduction of the forest resource at the rate of 42 MM feet annually in contrast with an average annual reduction of 37 MM feet from 1929-33. Gross board-foot growth has been decreasing since 1933 because of reduction in the sawtimber growing stock. Mortality, however, has been decreasing at about the same rate because of lowered fire losses and the reduction of the area occupied by decadent stands. Net annual growth before allowance for commodity drain has remained relatively constant at from 30 to 35 MM feet.



Survey Method

The initial survey in 1932-33 was made by the compilation method and gave very detailed statistics on the forest resource at that time 1/. A type map was also prepared. Since the cost of repeating periodically such a survey to obtain current statistics would be prohibitive a sampling method was designed and followed on the resurvey in 1943-44. Briefly, this consisted in taking data on about 4,000 1/20-acre plots five chains apart along parallel cruise lines, spaced three miles apart and disposed in a north-south direction. Because of the differences in methodology the results of the two surveys are indicative of significant trends rather than of actual interim changes.

A check between the all-species volume as derived from the sampling method and the 1933 estimates adjusted for interim growth and drain indicated a very close correlation, 1,870 million and 1,827 million board feet, respectively. However, there were marked differences in volumes by species, as shown by the following comparisons:

Species	1944 resurvey	1933 survey adjusted	Correlation factor 2/
	Million board feet, Scribner:		
Western white pine	143.1	238.5	0.6
Ponderosa pine	248.5	277.7	0.9
Western larch	394.5	457.4	0.9
Douglas-fir	537.6	364.1	1.5
Grand fir	279.7	230.0	1.2
Western redcedar	158.3	147.2	1.1
Western hemlock	50.2	19.0	2.6
Engelmann spruce	9.7	25.1	0.4
Lodgepole pine	42.0	67.4	0.6
Hardwoods	6.3	0.1	6.3
Total	1,869.9	1,826.5	1.0

1/ The results of this survey are reported in Forest Survey Release No. 8, Forest Statistics Benewah County, Idaho, issued by the Northern Rocky Mountain Forest and Range Experiment Station in September, 1937.

2/ The 1944 resurvey volumes divided by the adjusted 1933 volumes.

Appendix

BENEWAH COUNTY, IDAHO

Table 1 - Total area by major uses, 1944

Type of land	Area	
	M acres	Percent
Forest land:		
Commercial	393	97
Noncommercial	11	3
Total forest land	404	80
Nonforest land:		
Cultivated, pasture, grass	86	93
Townsites	1	1
Brush	1	1
Barren	2	2
Roads and railroads	3	3
Total nonforest land	93	18
Total land area	497	98
Water area	7	2
Grand total, land and water area	504	100

BENEWAH COUNTY, IDAHO

Table 2 - Commercial forest land by forest type 1/, stand class and cutting condition, 1944

Forest type	Stand class	Cutting condition: Partially cut 2/	Uncut	Total
			-Acres-	
Western white pine	Sawtimber	4,349	9,785	14,134
	Pole	6,040	12,804	18,844
	Seedling-sapling	8,818	10,509	19,327
	Total	19,207	33,098	52,305
Ponderosa pine (Pure)	Sawtimber	7,006	9,470	16,476
	Pole	1,812	1,933	3,745
	Seedling-sapling	3,503	1,449	4,952
	Total	12,321	12,852	25,173
Ponderosa pine (Mixed)	Sawtimber	1,933	4,227	6,160
	Pole	846	845	1,691
	Seedling-sapling	1,691	725	2,416
	Total	4,470	5,797	10,267
Larch-Douglas-fir	Sawtimber	10,846	17,394	28,240
	Pole	3,744	12,683	16,427
	Seedling-sapling	7,248	7,248	14,496
	Total	21,838	37,325	59,163
Hemlock-grand fir	Sawtimber	10,749	6,644	17,393
	Pole	7,489	3,866	11,355
	Seedling-sapling	11,717	7,489	19,206
	Total	29,955	17,999	47,954
Douglas-fir	Sawtimber	14,604	15,276	29,880
	Pole	5,436	6,040	11,476
	Seedling-sapling	10,267	8,799	19,066
	Total	30,307	30,115	60,422
Engelmann spruce	Sawtimber	242	242	484
	Pole	121	121	242
	Seedling-sapling	242	121	363
	Total	605	484	1,089
Lodgepole pine	Sawtimber	1,571	1,009	2,580
	Pole	4,590	3,141	7,731
	Seedling-sapling	4,107	2,295	6,402
	Total	10,268	6,445	16,713
Western redcedar	Sawtimber	6,230	2,899	9,129
	Pole	2,295	2,295	4,590
	Seedling-sapling	5,315	3,503	8,818
	Total	13,840	8,697	22,537
Cedar-grand fir	Sawtimber	4,349	4,107	8,456
	Pole	2,053	2,536	4,589
	Seedling-sapling	4,711	3,019	7,730
	Total	11,113	9,662	20,775
Hardwood	Sawtimber	242	483	725
	Pole	121	121	242
	Seedling-sapling	483	1,208	1,691
	Total	846	1,812	2,658
All stocked types	Sawtimber	62,121	71,536	133,657
	Pole	34,547	46,385	80,932
	Seedling-sapling	58,102	46,365	104,467
	Total	154,770	164,286	319,056
Nonstocked burns				34,909
Nonstocked cutovers				38,569
	Total			73,478
	Grand Total			392,534

1/ Definition of forest types, terms, etc. are covered in the appendix.
2/ Sawtimber stands partially cut but retaining sawtimber characteristics; pole and seedling-sapling stands that remained after cutting or became established following cutting.

BENEWAH COUNTY, IDAHO

Table 3 - Commercial forest land by forest type and site class 1/, 1944

Forest type and stocked or nonstocked	Site class						
	I	II	III	IV	V	VI	Total
	Acres						
Western white pine							
Stocked	19,206	13,168	14,011	4,832	1,088	-	52,305
Nonstocked	2,658	4,469	3,986	1,570	242	-	12,925
Ponderosa pine (pure)							
Stocked	966	2,656	11,161	7,006	2,900	484	25,173
Nonstocked	121	242	2,537	2,935	241	-	6,076
Ponderosa pine (mixed)							
Stocked	604	1,570	3,504	3,623	966	-	10,267
Nonstocked	-	1,933	12,321	7,852	966	-	23,072
Larch-Douglas-fir							
Stocked	14,374	16,790	19,543	7,127	1,329	-	59,163
Nonstocked	604	4,348	9,422	4,107	-	-	18,481
Hemlock-grand fir							
Stocked	5,193	13,287	21,381	7,489	604	-	47,954
Nonstocked	-	362	846	-	-	-	1,208
Douglas-fir							
Stocked	5,919	9,060	22,328	18,404	4,711	-	60,422
Nonstocked	-	362	4,107	3,865	846	-	9,180
Engelmann spruce							
Stocked	242	363	363	121	-	-	1,089
Nonstocked	-	-	121	-	-	-	121
Lodgepole pine							
Stocked	6,083	6,523	4,107	-	-	-	16,713
Nonstocked	121	121	121	-	-	-	363
Western redcedar							
Stocked	2,052	4,349	10,096	5,436	604	-	22,537
Nonstocked	-	604	-	-	-	-	604
Cedar-grand fir							
Stocked	2,778	7,368	7,126	2,779	724	-	20,775
Nonstocked	-	483	483	-	-	-	966
All coniferous types							
Stocked	57,417	75,134	113,620	56,817	12,926	484	316,398
Nonstocked	3,504	12,924	33,944	20,329	2,295	-	72,996
Total	60,921	88,058	147,564	77,146	15,221	484	389,394
Hardwood type							
Stocked							2,658
Nonstocked							482
Grand total							392,534

1/ Exclusive of hardwood type which is not classified by site.

BENEWAH COUNTY, IDAHO

Table 4 - Commercial forest land by forest type, stand class and age class, 1944

Forest type	Stand class	Nonstocked	Age class (years)						Total stocked area	Total all area
			0-40	41-80	81-120	121-160	161-200	200+		
						Acres				
Western white pine	Sawtimber	-	845	4,832	3,142	2,899	725	1,691	14,134	-
	Pole	-	6,281	8,939	1,933	1,208	483	-	18,844	-
	Seedling-sapling	-	17,515	1,570	242	-	-	-	19,327	-
	Total	12,925	24,641	15,341	5,317	4,107	1,208	1,691	52,305	65,230
Ponderosa pine (Pure)	Sawtimber	-	483	6,885	5,122	1,691	725	1,570	16,476	-
	Pole	-	2,416	1,329	-	-	-	-	3,745	-
	Seedling-sapling	-	4,952	-	-	-	-	-	4,952	-
	Total	6,076	7,851	8,214	5,122	1,691	725	1,570	25,173	31,249
Ponderosa pine (Mixed)	Sawtimber	-	-	2,416	1,691	966	483	604	6,160	-
	Pole	-	362	1,208	121	-	-	-	1,691	-
	Seedling-sapling	-	2,416	-	-	-	-	-	2,416	-
	Total	23,072	2,778	3,624	1,812	966	483	604	10,267	33,339
Larch-Douglas-fir	Sawtimber	-	604	4,227	6,281	7,586	4,107	5,435	28,240	-
	Pole	-	6,885	7,610	1,449	242	121	120	16,427	-
	Seedling-sapling	-	13,771	725	-	-	-	-	14,496	-
	Total	18,481	21,260	12,562	7,730	7,828	4,228	5,555	59,163	77,644
Hemlock-grand fir	Sawtimber	-	-	5,676	7,731	3,141	362	483	17,393	-
	Pole	-	1,329	7,248	2,174	483	121	-	11,355	-
	Seedling-sapling	-	18,481	363	362	-	-	-	19,206	-
	Total	1,208	19,810	13,287	10,267	3,624	483	483	47,954	49,162
Douglas-fir	Sawtimber	-	604	7,247	11,036	6,402	2,054	2,537	29,880	-
	Pole	-	4,953	5,798	604	121	-	-	11,476	-
	Seedling-sapling	-	18,462	604	-	-	-	-	19,066	-
	Total	9,180	24,019	13,649	11,640	6,523	2,054	2,537	60,422	69,602
Engelmann spruce	Sawtimber	-	-	-	242	121	121	-	484	-
	Pole	-	121	121	-	-	-	-	242	-
	Seedling-sapling	-	363	-	-	-	-	-	363	-
	Total	121	484	121	242	121	121	-	1,089	1,210
Lodgepole pine	Sawtimber	-	241	1,735	242	362	-	-	2,580	-
	Pole	-	5,436	1,933	362	-	-	-	7,731	-
	Seedling-sapling	-	6,281	121	-	-	-	-	6,402	-
	Total	363	11,958	3,789	604	362	-	-	16,713	17,076
Western redcedar	Sawtimber	-	121	1,207	2,486	2,174	1,933	1,208	9,129	-
	Pole	-	483	1,812	1,450	362	242	241	4,590	-
	Seedling-sapling	-	8,214	483	121	-	-	-	8,818	-
	Total	604	8,818	3,502	4,057	2,536	2,175	1,449	22,537	23,141
Cedar-grand fir	Sawtimber	-	-	1,691	3,382	2,537	725	121	8,456	-
	Pole	-	482	3,261	483	242	121	-	4,589	-
	Seedling-sapling	-	7,005	483	242	-	-	-	7,730	-
	Total	966	7,487	5,435	4,107	2,779	846	121	20,775	21,741
Hardwood	Sawtimber	-	242	483	-	-	-	-	725	-
	Pole	-	121	121	-	-	-	-	242	-
	Seedling-sapling	-	1,691	-	-	-	-	-	1,691	-
	Total	482	2,054	604	-	-	-	-	2,658	3,140
All types	Sawtimber	-	3,140	36,399	41,355	27,879	11,235	13,649	133,657	-
	Pole	-	28,869	39,380	8,576	2,658	1,088	361	80,932	-
	Seedling-sapling	-	99,151	4,349	967	-	-	-	104,467	-
	Total	73,478	131,160	80,128	50,898	30,537	12,323	14,010	319,056	392,534

BENEWAH COUNTY, IDAHO

Table 5 - Net sawtimber volume (Scribner rule) of the commercial forests by forest type, species and stand class, 1944

Forest type	Area of stands	Western white pine	Ponderosa pine	Western larch	Douglas-fir	Grand fir	Western redcedar	Western hemlock	Engelmann spruce	Lodgepole pine	Hard-woods	All species	Cedar poles
	Acres	Thousand board feet											Pieces
SAWTIMBER STANDS													
Western white pine	14,134	110,941	2,164	35,067	18,101	15,224	20,102	10,994	2,285	4,700	-	219,578	33,822
Ponderosa pine (pure)	16,476	-	179,137	142	1,279	-	-	-	-	-	-	180,558	-
Ponderosa pine (mixed)	6,160	268	57,459	4,181	37,737	4,116	1,664	-	-	545	-	105,970	7,248
Larch-Douglas-fir	28,240	1,804	-	287,434	96,526	17,527	12,506	1,852	-	2,646	-	420,295	26,574
Hemlock-grand fir	17,393	268	364	12,103	16,005	127,178	-	16,563	982	2,644	-	176,107	-
Douglas-fir	29,880	937	3,074	-	318,652	15,498	4,101	-	-	2,872	-	345,134	12,079
Engelmann spruce	484	-	-	275	-	565	-	-	5,586	-	-	6,426	-
Lodgepole pine	2,580	-	472	422	568	960	-	-	294	17,102	-	19,818	-
Western redcedar	9,129	-	-	3,947	1,969	5,141	84,102	1,759	-	-	-	96,918	86,971
Cedar-grand fir	8,456	-	-	15,493	7,010	70,618	21,501	12,981	294	275	-	128,172	60,397
Hardwood	725	-	-	-	-	-	380	-	-	-	6,096	6,476	-
Total	133,657	114,218	242,670	359,064	497,847	256,827	144,356	44,149	9,441	30,784	6,096	1,705,452	227,091
POLE STANDS													
Western white pine	18,844	23,501	946	13,709	6,581	5,379	4,234	1,391	301	3,733	-	59,775	16,911
Ponderosa pine (pure)	3,745	-	2,038	-	-	-	-	-	-	-	-	2,038	-
Ponderosa pine (mixed)	1,691	-	1,261	-	1,635	-	-	-	-	-	-	2,896	-
Larch-Douglas-fir	16,427	274	212	9,363	6,310	403	147	188	-	723	-	17,620	2,416
Hemlock-grand fir	11,355	1,257	556	2,904	3,976	9,957	-	1,787	-	2,577	210	23,224	-
Douglas-fir	11,476	-	334	-	10,647	403	147	188	-	281	-	12,000	2,416
Engelmann spruce	242	-	-	-	-	-	-	-	-	723	-	723	-
Lodgepole pine	7,731	-	225	146	124	-	-	-	-	1,106	-	1,601	-
Western redcedar	4,590	-	-	731	253	403	4,939	188	-	281	-	6,795	19,327
Cedar-grand fir	4,589	697	-	6,134	4,018	4,753	3,351	1,975	-	923	-	21,851	26,574
Hardwood	242	-	-	-	1,877	-	-	-	-	-	-	1,877	-
Total	80,932	25,729	5,572	32,987	35,421	21,298	12,818	5,717	301	10,347	210	150,400	67,644
SEEDLING - SAPLING STANDS													
Western white pine	19,327	3,191	-	-	1,470	782	282	-	-	-	-	5,725	-
Ponderosa pine (pure)	4,952	-	227	-	-	-	-	-	-	-	-	227	-
Ponderosa pine (mixed)	2,416	-	-	-	124	-	-	-	-	-	-	124	-
Larch-Douglas-fir	14,496	-	-	1,478	-	-	-	-	-	-	-	1,478	-
Hemlock-grand fir	19,206	-	-	-	1,077	576	-	339	-	550	-	2,542	-
Douglas-fir	19,066	-	-	-	1,411	-	-	-	-	-	-	1,411	2,416
Engelmann spruce	363	-	-	-	-	-	-	-	-	-	-	-	-
Lodgepole pine	6,402	-	-	-	-	-	-	-	-	282	-	282	-
Western redcedar	8,818	-	-	-	255	-	282	-	-	-	-	537	-
Cedar-grand fir	7,730	-	-	982	-	200	586	-	-	-	-	1,768	-
Hardwood	1,691	-	-	-	-	-	-	-	-	-	-	-	-
Total	104,467	3,191	227	2,460	4,337	1,558	1,150	339	-	832	-	14,094	2,416
Grand total	319,056	143,138	248,469	394,511	537,605	279,683	158,324	50,205	9,742	41,963	6,306	1,869,946	297,151

BENEWAH COUNTY, IDAHO

Table 6 - Net sawtimber volume (Scribner rule) of the commercial sawtimber stands by forest type, species and stocking class 1/, 1944

Forest type	Stocking class	Area	Western white pine	Ponderosa pine	Western larch	Douglas-fir	Grand fir	Western redcedar	Western hemlock	Engelmann spruce	Lodgepole pine	Hard-woods	All species
		Acres	Thousand board feet										
Western white pine	Well	7,490	91,859	2,164	32,718	15,911	11,905	17,770	9,433	1,826	3,440	-	187,026
	Medium	5,315	16,974	-	1,718	2,190	3,319	2,332	1,561	459	1,260	-	29,813
	Poor	1,329	2,108	-	631	-	-	-	-	-	-	-	2,739
	Total	14,134	110,941	2,164	35,067	18,101	15,224	20,102	10,994	2,285	4,700	-	219,578
Ponderosa pine (pure)	Well	4,771	-	127,387	142	1,092	-	-	-	-	-	-	128,601
	Medium	7,356	-	44,605	-	187	-	-	-	-	-	-	44,792
	Poor	4,349	-	7,165	-	-	-	-	-	-	-	-	7,165
	Total	16,476	-	179,137	142	1,279	-	-	-	-	-	-	180,558
Ponderosa pine (mixed)	Well	2,778	268	47,634	3,056	29,246	3,038	1,664	-	-	272	-	85,178
	Medium	3,019	-	9,423	870	8,416	1,078	-	-	-	273	-	20,060
	Poor	363	-	402	255	75	-	-	-	-	-	-	732
	Total	6,160	268	57,459	4,181	37,737	4,116	1,664	-	-	545	-	105,970
Larch-Douglas-fir	Well	16,669	1,804	-	244,894	83,495	16,387	10,468	1,507	-	1,781	-	360,336
	Medium	8,455	-	-	37,079	12,741	1,140	2,038	345	-	865	-	54,208
	Poor	3,116	-	-	5,461	290	-	-	-	-	-	-	5,751
	Total	28,240	1,804	-	287,434	96,526	17,527	12,506	1,852	-	2,646	-	420,295
Hemlock-grand fir	Well	6,523	-	364	10,662	13,412	90,170	-	7,635	684	1,822	-	124,749
	Medium	8,334	268	-	1,441	2,481	33,193	-	8,431	298	822	-	46,934
	Poor	2,536	-	-	-	112	3,815	-	497	-	-	-	4,424
	Total	17,393	268	364	12,103	16,005	127,178	-	16,563	982	2,644	-	176,107
Douglas-fir	Well	13,223	937	2,978	-	242,176	13,452	4,101	-	-	2,596	-	266,240
	Medium	11,053	-	96	-	66,598	2,046	-	-	-	276	-	69,016
	Poor	5,604	-	-	-	9,878	-	-	-	-	-	-	9,878
	Total	29,880	937	3,074	-	318,652	15,498	4,101	-	-	2,872	-	345,134
Engelmann spruce	Well	242	-	-	-	-	565	-	-	4,407	-	-	4,972
	Medium	242	-	-	275	-	-	-	-	1,179	-	-	1,454
	Poor	-	-	-	-	-	-	-	-	-	-	-	-
	Total	484	-	-	275	-	565	-	-	5,586	-	-	6,426
Lodgepole pine	Well	845	-	365	141	568	535	-	-	294	8,842	-	10,745
	Medium	1,131	-	107	281	-	425	-	-	-	6,892	-	7,705
	Poor	604	-	-	-	-	-	-	-	-	1,368	-	1,368
	Total	2,580	-	472	422	568	960	-	-	294	17,102	-	19,818
Western redcedar	Well	3,210	-	-	3,947	1,617	4,940	60,049	943	-	-	-	71,496
	Medium	3,503	-	-	-	262	201	20,268	816	-	-	-	21,547
	Poor	2,416	-	-	-	90	-	3,785	-	-	-	-	3,875
	Total	9,129	-	-	3,947	1,969	5,141	84,102	1,759	-	-	-	96,918
Cedar-grand fir	Well	5,315	-	-	13,882	6,127	58,542	18,964	11,501	294	-	-	109,310
	Medium	2,658	--	-	1,611	883	11,158	2,387	1,285	-	275	-	17,599
	Poor	483	-	-	-	-	918	150	195	-	-	-	1,263
	Total	8,456	-	-	15,493	7,010	70,618	21,501	12,981	294	275	-	128,172
Hardwood	Well	362	-	-	-	-	-	380	-	-	-	4,505	4,885
	Medium	242	-	-	-	-	-	-	-	-	-	1,378	1,378
	Poor	121	-	-	-	-	-	-	-	-	-	213	213
	Total	725	-	-	-	-	-	380	-	-	-	6,096	6,476
All types	Well	61,428	94,868	180,872	309,442	393,644	199,534	113,396	31,019	7,505	18,753	4,505	1,353,538
	Medium	51,308	17,242	54,231	43,275	93,758	52,560	27,025	12,438	1,936	10,663	1,378	314,506
	Poor	20,921	2,108	7,567	6,347	10,445	4,733	3,935	692	-	1,368	213	37,408
Grand	Total	133,657	114,218	242,670	359,064	497,847	256,827	144,356	44,149	9,441	30,784	6,096	1,705,452

1/ Poorly stocked contains less than 3,000 board feet per acre; medium stocked contains 3,000 to 10,000 board feet per acre; well stocked contains over 10,000 board feet per acre.

BENEWAH COUNTY, IDAHO

Table 7 - Net sawtimber volume (lumber tally) of the commercial forests by forest type, species, and stand class, 1944

Forest type	Area of stands	Western white pine	Ponderosa pine	Western larch	Douglas-fir	Grand fir	Western redcedar	Western hemlock	Engelmann spruce	Lodgepole pine	Hard-woods	All species
	Acres	Thousand board feet										
		SAWTIMBER STANDS										
Western white pine	14,134	135,348	2,510	42,080	21,721	18,269	24,124	13,193	2,742	5,640	-	265,627
Ponderosa P.(pure)	16,476	-	207,799	170	1,535	-	-	-	-	-	-	209,504
Ponderosa Pine (mixed)	6,160	327	66,652	5,017	45,284	4,938	1,997	-	-	654	-	124,869
Larch-Douglas-fir	28,240	2,201	-	344,921	115,831	21,032	15,007	2,222	-	3,175	-	504,389
Hemlock-grand fir	17,393	327	422	14,523	19,206	152,614	-	19,876	1,178	3,173	-	211,319
Douglas-fir	29,880	1,143	3,566	-	382,382	18,598	4,921	-	-	3,446	-	414,056
Engelmann spruce	484	-	-	330	-	678	-	-	6,703	-	-	7,711
Lodgepole pine	2,580	-	548	506	682	1,152	-	-	353	20,522	-	23,763
Western redcedar	9,129	-	-	4,736	2,363	6,169	100,922	2,111	-	-	-	116,301
Cedar-grand fir	8,456	-	-	18,592	8,412	84,742	25,801	15,577	353	330	-	153,807
Hardwood	725	-	-	-	-	-	456	-	-	-	7,071	7,527
Total	133,657	139,346	281,497	430,875	597,416	308,192	173,228	52,979	11,329	36,940	7,071	2,038,873
		POLE STANDS										
Western white pine	18,844	28,670	1,097	16,452	7,897	6,454	5,081	1,669	361	4,480	-	72,161
Ponderosa P.(pure)	3,745	-	2,364	-	-	-	-	-	-	-	-	2,364
Ponderosa pine (mixed)	1,691	-	1,463	-	1,962	-	-	-	-	-	-	3,425
Larch-Douglas-fir	16,427	335	247	11,235	7,572	484	177	226	-	868	-	21,144
Hemlock-grand fir	11,355	1,533	645	3,485	4,772	11,948	-	2,144	-	3,092	244	27,863
Douglas-fir	11,476	-	388	-	12,776	484	177	226	-	337	-	14,388
Engelmann spruce	242	-	-	-	-	-	-	-	-	868	-	868
Lodgepole pine	7,731	-	261	174	148	-	-	-	-	1,328	-	1,911
Western redcedar	4,590	-	-	878	304	484	5,928	226	-	337	-	8,157
Cedar-grand fir	4,589	850	-	7,361	4,822	5,704	4,020	2,371	-	1,107	-	26,235
Hardwood	242	-	-	-	2,252	-	-	-	-	-	-	2,252
Total	80,932	31,388	6,465	39,585	42,505	25,558	15,383	6,862	361	12,417	244	180,768
		SEEDLING-SAPLING STANDS										
Western white pine	19,327	3,893	-	-	1,765	939	338	-	-	-	-	6,935
Ponderosa P.(pure)	4,952	-	263	-	-	-	-	-	-	-	-	263
Ponderosa pine (mixed)	2,416	-	-	-	149	-	-	-	-	-	-	149
Larch-Douglas-fir	14,496	-	-	1,775	-	-	-	-	-	-	-	1,775
Hemlock-grand fir	19,206	-	-	-	1,292	691	-	407	-	660	-	3,050
Douglas-fir	19,066	-	-	-	1,694	-	-	-	-	-	-	1,694
Engelmann spruce	363	-	-	-	-	-	-	-	-	-	-	-
Lodgepole pine	6,402	-	-	-	-	-	-	-	-	339	-	339
Western redcedar	8,818	-	-	-	306	-	338	-	-	-	-	644
Cedar-grand fir	7,730	-	-	1,179	-	240	703	-	-	-	-	2,122
Hardwood	1,691	-	-	-	-	-	-	-	-	-	-	-
Total	104,467	3,893	263	2,954	5,206	1,870	1,379	407	-	999	-	16,971
Grand total	319,056	174,627	288,225	473,414	645,127	335,620	189,990	60,248	11,690	50,356	7,315	2,236,612

BENEWAH COUNTY, IDAHO

Table 8 - Cubic-foot volume 1/ of the commercial forests by species, tree size and stand class, 1944

Species	Poorly stocked 2/ sawtimber stands			Medium, well-stocked 3/ sawtimber stands			Pole stands			Seedling and Sapling stands			All stands		
	Sawtimber trees 4/	Pole trees 5/	Total	Sawtimber trees 4/	Pole trees 5/	Total	Sawtimber trees 4/	Pole trees 5/	Total	Sawtimber trees 4/	Pole trees 5/	Total	Sawtimber trees 4/	Pole trees 5/	Total
	Thousand cubic feet														
Western white pine	386	-	386	19,940	2,201	22,141	5,085	25,057	30,142	622	652	1,274	26,033	27,910	53,943
Ponderosa pine	1,437	88	1,525	43,457	1,868	45,325	1,382	5,900	7,282	52	86	138	46,328	7,942	54,270
Western larch	1,317	-	1,317	68,023	2,608	70,631	7,345	25,206	32,551	467	873	1,340	77,152	28,687	105,839
Douglas-fir	2,203	205	2,408	97,907	3,463	101,370	8,760	27,954	36,714	997	676	1,673	109,867	32,298	142,165
Grand fir	935	-	935	48,291	7,368	55,659	4,773	34,296	39,069	368	785	1,153	54,367	42,449	96,816
Western redcedar	898	-	898	31,166	5,116	36,282	3,190	11,630	14,820	268	145	413	35,522	16,891	52,413
Western hemlock	144	-	144	8,862	1,172	10,034	1,291	6,303	7,594	74	174	248	10,371	7,649	18,020
Engelmann spruce	-	-	-	2,349	423	2,772	116	1,274	1,390	-	-	-	2,465	1,697	4,162
Lodgepole pine	284	-	284	6,024	348	6,372	2,147	14,365	16,512	176	580	756	8,631	15,293	23,924
Hardwoods	45	-	45	1,244	387	1,631	47	522	569	-	-	-	1,336	909	2,245
Total	7,649	293	7,942	327,263	24,954	352,217	34,136	152,507	186,643	3,024	3,971	6,995	372,072	181,725	553,797

1/ The sound volume from stump to 4" top, exclusive of bark, of all trees larger than 5.0" d.b.h. including the stem only of coniferous trees and stem and limbs of hardwood trees.

2/ Areas characterized by a plurality of net cubic volume in sawtimber size trees, but with less than 3,000 board feet (Scribner rule) per acre.

3/ Sawtimber stands with 3,000 or more board feet (Scribner rule) per acre.

4/ Trees larger than 11.0" d.b.h.

5/ Sound trees 5.0 to 11.0" d.b.h.

BENEWAH COUNTY, IDAHO

Table 9 - Gross annual cubic-foot growth 1/ of the commercial forests by tree size, species and stand class, 1944

Tree size	Western white pine	Ponderosa pine	Western larch	Douglas-fir	Grand fir	Western redcedar	Western hemlock	Engelmann spruce	Lodgepole pine	Hard-woods	All species
	Thousand cubic feet										
	SAWTIMBER STANDS										
Sawtimber trees 2/	411	834	779	1,499	1,242	515	261	37	154	78	5,810
Pole trees 3/	91	93	63	147	359	174	62	13	14	23	1,039
Total	502	927	842	1,646	1,601	689	323	50	168	101	6,849
	POLE STANDS										
Sawtimber trees 2/	146	57	191	280	146	91	44	4	61	2	1,022
Pole trees 3/	1,379	301	1,337	1,751	1,775	492	367	78	964	57	8,501
Total	1,525	358	1,528	2,031	1,921	583	411	82	1,025	59	9,523
	SEEDLING-SAPLING STANDS										
Sawtimber trees 2/	18	2	4	25	12	9	2	-	7	-	79
Pole trees 3/	43	5	68	57	58	10	13	-	45	-	299
Total	61	7	72	82	70	19	15	-	52	-	378
	ALL STANDS										
Sawtimber trees 2/	575	893	974	1,804	1,400	615	307	41	222	80	6,911
Pole trees 3/	1,513	399	1,468	1,955	2,192	676	442	91	1,023	80	9,839
Total	2,088	1,292	2,442	3,759	3,592	1,291	749	132	1,245	160	16,750

1/ The sound volume growth from stump to 4" top, exclusive of bark, of all trees larger than 5.0" d.b.h. including the stem only of coniferous trees and stem and limbs of hardwood trees.

2/ Trees larger than 11.0" d.b.h.

3/ Sound trees 5.0" to 11.0" d.b.h.

BENEWAH COUNTY, IDAHO

Table 10 - Net annual cubic-foot growth 1/ of the commercial forests by tree size, species and stand class, 1944

Tree size	Western white pine	Ponderosa pine	Western larch	Douglas-fir	Grand fir	Western redcedar	Western hemlock	Engelmann spruce	Lodgepole pine	Hard-woods	All species
	Thousand cubic feet										
	SAWTIMBER STANDS										
Sawtimber trees 2/	352	706	469	642	1,050	370	230	27	79	61	3,986
Pole trees 3/	80	85	8	64	272	174	62	-23 4/	14	14	750
Total	432	791	477	706	1,322	544	292	4	93	75	4,736
	POLE STANDS										
Sawtimber trees 2/	136	56	61	123	58	55	43	4	47	2	585
Pole trees 3/	1,301	155	1,328	1,661	1,657	479	367	78	953	57	8,036
Total	1,437	211	1,389	1,784	1,715	534	410	82	1,000	59	8,621
	SEEDLING-SAPLING STANDS										
Sawtimber trees 2/	6	2	4	8	-8 4/	8	2	-	7	-	29
Pole trees 3/	13	5	59	-30 4/	-447 4/	-151 4/	-70 4/	-	45	-	-576
Total	19	7	63	-22 4/	-455 4/	-143 4/	-68 4/	-	52	-	-547
	ALL STANDS										
Sawtimber trees 2/	494	764	534	773	1,100	433	275	31	133	63	4,600
Pole trees 3/	1,394	245	1,395	1,695	1,482	502	359	55	1,012	71	8,210
Total	1,888	1,009	1,929	2,468	2,582	935	634	86	1,145	134	12,810

1/ The sound volume growth from stump to 4" top, exclusive of bark, of all trees larger than 5.0" d.b.h. including the stem only of coniferous trees, and stem and limbs of hardwood trees.

2/ Trees larger than 11.0" d.b.h.

3/ Sound trees 5.0" to 11.0" d.b.h.

4/ Average annual mortality during the past 5 years exceeded average annual growth during the past 10 years by the amounts indicated. This is accounted for by the heavy mortality of residual understory trees following logging because of injuries, slash burning, sudden release from shading, etc.

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Table 11 - Gross annual board-foot growth (Scribner rule) of the commercial forests by species and stand class, 1944

Western white pine	Ponderosa pine	Western larch	Douglas-fir	Grand fir	Western redcedar	Western hemlock	Engelmann spruce	Lodgepole pine	Hard-woods	All species
-Thousand board feet-										
SAWTIMBER STANDS										
3,295	5,034	4,661	9,194	8,075	3,240	1,678	213	1,040	501	36,931
POLE STANDS										
1,510	425	1,220	1,772	1,151	572	269	29	530	8	7,486
SEEDLING-SAPLING STANDS										
228	11	24	188	146	58	11	-	73	-	739
ALL STANDS										
5,033	5,470	5,905	11,154	9,372	3,870	1,958	242	1,643	509	45,156

BENEWAH COUNTY, IDAHO

Table 12 - Net annual board-foot growth (Scribner rule) of the commercial forests by species and stand class, 1944

Western white pine	Ponderosa pine	Western larch	Douglas-fir	Grand fir	Western redcedar	Western hemlock	Engelmann spruce	Lodgepole pine	Hard-woods-	All species
-Thousand board feet-										
SAWTIMBER STANDS										
2,769	4,240	2,690	3,930	6,770	2,226	1,447	149	524	391	25,136
POLE STANDS										
1,374	410	228	756	446	329	258	28	407	6	4,242
SEEDLING-SAPLING STANDS										
73	11	21	62	- 99 1/	49	11	-	71	-	199
ALL STANDS										
4,216	4,661	2,939	4,748	7,117	2,604	1,716	177	1,002	397	29,577

1/ Average annual mortality during the past 5 years exceeded average annual growth during the past 10 years by the amount indicated. This is accounted for by the heavy mortality of residual understory trees following logging because of injuries, slash burning, sudden release from shading, etc.

BENEWAH COUNTY, IDAHO

Table 13 - Board-foot volume (Scribner rule) of cull 1/ sawtimber trees in the commercial forests by forest type, species and stand class, 1944

Forest type	Area of stands	Western white pine	Ponderosa pine	Western larch	Douglas-fir	Grand fir	Western redcedar	Western hemlock	Engelmann spruce	Lodgepole pine	Hard-woods	All species
	Acres	Thousand board feet										
		SAWTIMBER STANDS										
Western white pine	14,134	5,768	-	1,923	-	23,197	16,394	6,900	-	565	-	54,747
Ponderosa p. (pure)	16,476	1,160	734	2,382	1,109	188	-	-	-	-	-	5,573
Ponderosa pine (mixed)	6,160	-	-	-	92	-	-	-	-	-	-	92
Larch-Douglas-fir	28,240	3,629	-	12,292	7,219	19,967	13,367	7,037	-	937	-	64,448
Hemlock-grand fir	17,393	-	-	15,372	2,650	54,748	6,854	13,642	-	655	-	93,921
Douglas-fir	29,880	2,947	6,475	9,514	9,415	34,387	4,779	-	-	2,167	-	69,684
Engelmann spruce	484	-	-	-	-	2,252	-	-	-	-	-	2,252
Lodgepole pine	2,580	-	-	599	-	1,000	-	416	-	2,979	-	4,994
Western redcedar	9,129	2,633	-	10,519	-	22,554	28,239	396	-	-	-	64,341
Cedar-grand fir	8,456	-	-	1,425	1,759	21,719	12,732	396	-	727	-	38,758
Hardwood	725	-	-	-	-	-	-	-	-	-	-	-
Total	133,657	16,137	7,209	54,026	22,244	180,012	82,365	28,787	-	8,030	-	398,810
		POLE STANDS										
Western white pine	18,844	-	-	4,423	-	14,889	11,973	971	-	727	-	32,983
Ponderosa p.(pure)	3,745	-	-	-	-	-	-	-	-	-	-	-
Ponderosa pine (mixed)	1,691	-	-	-	-	-	-	-	-	-	-	-
Larch-Douglas-fir	16,427	872	-	2,974	-	3,674	2,140	-	-	942	-	10,602
Hemlock-grand fir	11,355	4,783	-	5,897	3,382	15,718	5,776	2,996	-	1,597	-	40,149
Douglas-fir	11,476	-	-	1,399	-	2,056	3,372	-	-	-	-	6,827
Engelmann spruce	242	-	-	-	-	-	-	-	-	-	-	-
Lodgepole pine	7,731	-	-	715	-	386	-	-	-	-	-	1,101
Western redcedar	4,590	406	-	2,114	2,054	9,468	3,600	1,012	-	283	-	18,937
Cedar-grand fir	4,589	9,738	-	5,296	1,624	12,473	7,516	655	-	-	-	37,302
Hardwood	242	-	-	-	-	-	-	-	-	-	1,232	1,232
Total	80,932	15,799	-	22,818	7,060	58,664	34,377	5,634	-	3,549	1,232	149,133
		SEEDLING-SAPLING STANDS										
Western white pine	19,327	1,160	-	8,195	507	20,281	18,112	2,950	-	-	-	51,205
Ponderosa p. (pure)	4,952	-	-	-	-	-	-	-	-	-	-	-
Ponderosa pine (mixed)	2,416	-	-	-	-	-	-	-	-	-	-	-
Larch-Douglas-fir	14,496	850	-	1,155	4,336	1,452	1,075	-	-	-	-	8,868
Hemlock-grand fir	19,206	1,029	-	7,190	338	49,586	7,296	4,047	-	-	242	69,728
Douglas-fir	19,066	1,160	101	7,139	4,839	14,126	2,870	1,981	-	-	-	32,216
Engelmann spruce	363	-	-	1,619	-	-	-	-	-	-	-	1,619
Lodgepole pine	6,402	312	-	-	-	1,106	-	-	-	-	-	1,418
Western redcedar	8,818	-	-	6,129	-	23,736	8,671	2,558	-	-	-	41,094
Cedar-grand fir	7,730	1,483	-	2,962	-	27,031	6,175	9,932	-	-	-	47,583
Hardwood	1,691	-	-	304	-	-	-	-	-	-	-	304
Total	104,467	5,994	101	34,693	10,020	137,318	44,199	21,468	-	-	242	254,035
Grand total	319,056	37,930	7,310	111,537	39,324	375,994	160,941	55,889	-	11,579	1,474	801,978

1/ White pine trees more than 33 percent unsound and trees of all other species that are more than 50 percent unsound by customary scaling practices.

BENEWAH COUNTY, IDAHO

Table 14 - Cubic-foot volume of cull 1/ trees in the commercial forests by forest type, species and stand class, 1944

Forest type	Area of stands	Western white pine	Ponderosa pine	Western larch	Douglas-fir	Grand fir	Western redcedar	Western hemlock	Engelmann spruce	Lodgepole pone	Hard-woods	All species
	Acres	Thousand board feet										
						SAWTIMBER STANDS						
Western white pine	14,134	4,876	-	2,079	-	5,529	4,546	3,166	-	119	-	20,315
Ponderosa pine(pure)	16,476	206	2,523	398	296	3,144	-	-	-	-	-	6,567
Ponderosa pine (mixed)	6,160	-	-	-	40	600	-	-	-	-	-	640
Larch-Douglas-fir	28,240	2,372	-	7,280	7,651	11,294	11,055	2,448	-	188	-	42,288
Hemlock-grand fir	17,393	-	-	2,433	472	27,756	2,646	9,558	-	219	-	43,084
Douglas-fir	29,880	476	1,088	2,835	21,103	10,714	1,075	-	-	5,451	-	42,742
Engelmann spruce	484	-	-	-	-	444	-	-	-	-	-	444
Lodgepole pine	2,560	-	-	125	6,670	6,408	-	89	-	2,301	-	15,593
Western redcedar	9,129	433	-	1,875	-	4,175	12,011	1,075	-	-	-	19,569
Cedar-grand fir	8,456	-	-	248	326	6,262	6,647	1,359	-	150	-	14,992
Hardwood	725	-	-	-	-	-	-	-	-	-	-	-
Total	153,657	8,363	3,611	17,273	36,558	76,326	37,980	17,695	-	8,428	-	206,234
						POLE STANDS						
Western white pine	18,844	680	-	828	560	2,761	2,524	182	-	730	-	8,265
Ponderosa pine(pure)	3,745	-	-	-	-	-	-	-	-	-	-	-
Ponderosa pine (mixed)	1,691	-	-	-	-	-	-	-	-	-	-	-
Larch-Douglas-fir	16,427	172	-	1,255	-	606	3,026	-	-	824	-	5,883
Hemlock-grand fir	11,355	766	-	1,052	4,212	7,312	1,152	228	-	302	-	15,024
Douglas-fir	11,476	-	-	274	-	3,605	760	-	-	-	-	4,639
Engelmann spruce	242	-	-	-	-	-	-	-	-	-	-	-
Lodgepole pine	7,731	-	-	125	-	80	-	-	-	1,160	-	1,365
Western redcedar	4,590	83	-	411	392	1,672	734	206	-	119	-	3,617
Cedar-grand fir	4,589	1,538	-	647	293	2,054	2,254	130	-	-	-	6,916
Hardwood	242	-	-	-	-	-	-	-	-	-	314	314
Total	80,932	3,239	-	4,592	5,457	18,090	10,450	746	-	3,135	314	46,023
						SEEDLING-SAPLING STANDS						
Western white pine	19,327	206	-	1,461	108	3,845	4,196	560	-	-	-	10,376
Ponderosa pine(pure)	4,952	-	-	-	-	-	-	-	-	-	-	-
Ponderosa pine (mixed)	2,416	-	-	-	-	-	-	-	-	-	-	-
Larch-Douglas-fir	14,496	170	-	377	841	281	643	-	-	58	-	2,370
Hemlock-grand fir	19,206	207	616	1,322	103	9,356	1,643	765	-	-	54	14,066
Douglas-fir	19,066	223	33	1,306	596	2,979	878	139	-	333	-	6,487
Engelmann spruce	363	-	-	276	-	-	-	-	-	-	-	276
Lodgepole pine	6,402	63	-	-	-	276	-	-	-	-	-	339
Western redcedar	8,818	-	-	1,433	48	7,415	1,951	1,223	-	502	-	12,572
Cedar-grand fir	7,730	256	-	520	-	5,133	1,932	1,763	-	-	-	9,604
Hardwood	1,691	-	-	80	-	-	-	-	-	-	155	235
Total	104,467	1,125	649	6,775	1,696	29,285	11,243	4,450	-	893	209	56,325
Grand Total	319,056	12,727	4,260	28,640	43,711	123,701	59,673	22,891	-	12,456	523	308,582

1/ The gross volume from stump to a 4" top diameter, exclusive of bark, of cull trees larger than 5.0" d.b.h., including stems only of coniferous species and stems and limbs larger than 4" of hardwood species. Cull sawtimber trees are white pines that are more than 33 percent unsound and trees of all other species more than 50 percent unsound by customary scaling practices; cull pole trees, regardless of species and degree of soundness are those judged unlikely to survive current defect.

BENEWAH COUNTY, IDAHO

Table 15 - Average 1/ annual cutting, fire and other drain on the commercial forests by species and tree-size class

Species	Sawtimber trees				Pole trees				Sawtimber and pole trees			
	Cutting	Fire	Other	Total	Cutting	Fire	Other	Total	Cutting	Fire	Other	Total
	thousand board feet (Scribner rule)				thousand cubic feet (Scribner rule)				thousand cubic feet (Scribner rule)			
Western white pine	19,110	82	735	19,927	-	12	107	119	3,475	20	180	3,675
Ponderosa pine	13,676	81	728	14,485	2	16	138	156	2,244	28	255	2,527
Western larch	13,128	297	2,669	16,094	25	7	66	98	2,412	51	462	2,925
Douglas-fir	16,834	641	5,765	23,240	84	26	234	344	3,201	129	1,162	4,492
Grand fir	4,068	225	2,030	6,323	-	71	639	710	798	101	909	1,808
Western redcedar	4,188	127	1,139	5,454	4	17	157	178	842	36	320	1,198
Western hemlock	17	24	218	259	-	8	75	83	3	11	104	118
Engelmann spruce	338	6	59	403	-	4	32	36	61	5	41	107
Lodgepole pine	49	64	577	690	-	1	10	11	10	10	90	110
Hardwoods	298	11	101	410	2	1	8	11	80	3	23	106
Total	71,706	1,558	14,021	87,285	117	163	1,466	1,746	13,126	394	3,546	17,066

1/ 1940 - 1944, inclusive.

Definition of Terms

COMMERCIAL FOREST LAND

Land capable of producing commercial timber and economically accessible, now or prospectively, and not reserved from cutting.

Stocked Commercial Forest

Areas with generally 3 or 4 thousand board feet 1/ (depending upon forest type and regional practice) of sawtimber per acre; or areas that are more than 10 percent stocked with poles, seedlings, or saplings.

Commercial stands are grouped into 10 forest types as follow:

Western white pine - Stands in which western white pine constitutes 20 percent or more of the total net cubic volume. This type is given priority over all others. The minimum volume for a sawtimber stand is generally 4 thousand board feet per acre.

Ponderosa pine - Stands in which ponderosa pine constitutes 25 percent or more of the total net cubic volume. This type is given priority over all others except white pine. The minimum volume for a sawtimber stand is generally 3 thousand board feet per acre.

Larch-Douglas-fir - Stands in which larch and Douglas-fir constitute 75 percent or more of the total net cubic volume. At least 10 percent of the total volume is larch. The minimum volume for a sawtimber stand is generally 4 thousand board feet per acre.

Hemlock-grand fir - Stands in which hemlock and grand fir, either separately or combined, constitute 50 percent or more of the total net cubic volume. The minimum volume for a sawtimber stand is generally 4 thousand board feet per acre.

Douglas-fir - Stands in which Douglas-fir constitutes 60 percent or more of the total net cubic volume. The minimum volume for a sawtimber stand is generally 4 thousand board feet per acre.

Engelmann spruce - Stands in which Engelmann spruce constitutes 50 percent or more of the total net cubic volume. The minimum volume for a sawtimber stand is generally 4 thousand board feet per acre.

1/ All references to board-foot volume are in Scribner rule standards.

Lodgepole pine - Stands in which lodgepole pine constitutes 50 percent or more of the total net cubic volume. The minimum volume for a sawtimber stand is generally 3 thousand board feet per acre.

Western redcedar - Stands in which western redcedar constitutes 50 percent or more of the total net cubic volume. The minimum volume for a sawtimber stand is generally 4 thousand board feet per acre or 8 cedar poles per acre.

Cedar-grand fir - Stands in which western redcedar and grand fir, either separately or combined, constitute 50 percent or more of the total net cubic volume. The minimum volume for a sawtimber stand is generally 4 thousand board feet per acre or 8 cedar poles per acre.

Cottonwood - Stands in which northern black cottonwood constitutes 50 percent or more of the total net cubic volume. The minimum volume for a sawtimber stand is generally 4 thousand board feet per acre.

Commercial stands are also grouped into 3 classes according to size of trees predominating. These are:

Sawtimber stands - Stands in which a plurality of the total net cubic volume is in trees of sawtimber size and that generally average 3 or 4 thousand board feet of sawtimber volume per acre, excluding cedar poles. White pine, ponderosa pine, lodgepole pine, western redcedar, and cottonwood trees 11.0 inches in diameter and larger at breast height are classed as sawtimber. For the other species, trees 13.0 inches and larger are classed as sawtimber.

Pole stands - Stands in which a plurality of the total net cubic volume is in trees from 5.0 inches in diameter to sawtimber size.

Seedling-sapling stands - Stands in which a plurality of the total net cubic volume is in trees less than 5.0 inches in diameter.

Nonstocked Commercial Forest Land

Nonstocked cutover - Unimproved, logged areas which at the date of mapping generally averaged less than 3 or 4 thousand board feet per acre, and less than 10 percent stocked with poles and/or seedlings and saplings.

Nonstocked burn - Unimproved lands deforested by fire which at the date of mapping generally averaged less than 3 or 4 thousand board feet per acre, and less than 10 percent stocked with poles and/or seedlings and saplings.

NONCOMMERCIAL FOREST LAND

Withdrawn from timber use - Land capable of producing commercial timber and economically accessible, now or prospectively, but reserved from cutting.

Chiefly valuable for purposes other than timber production - Subalpine and other forest land which, because of low productivity or extreme inaccessibility, appears to be permanently out of the commercial timber-producing class.

LIST OF PREVIOUS PUBLICATIONS IN THIS SERIES

Station Paper No.	
1	*A preliminary study of root diseases in western white pine, by John Ehrlich, October 1939.
2	*Possibilities of partial cutting in young western white pine, by E. F. Rapraeger, January 1940.
3	Blister rust control in the management of western white pine, by Kenneth P. Davis and Virgil D. Moss, June 1940.
4	Possibilities of wood-pulp production in the northern Rocky Mountain region, by E. F. Rapraeger, March 1941.
5	Results to date of studies of the durability of native woods treated and untreated, by C. N. Whitney, revised January 1946.

*Out of print. Loan copies may be obtained upon request.